Louisiana Department of Insurance

Software Development Standards

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Executive Summary

This document represents a basis for the overall design, implementation, development, deployment, and documentation, for which all work performed on current applications and systems as well as future systems deployed at LDI must adhere. Included within this basis are the general and specific requirements as defined by the department. These requirements cover the internal systems which the department depends on for day to day operations. The external systems and Internet applications which the department provides for public use are addressed in this document. The increasing complex external systems are becoming more important for proper department operation.

In addition, the method of integration for all applications which bonds the applications and systems together and creates a seamless department wide application is included. Finally, the structure and storage of all data within the department databases is described, and a pattern of implementation expressed.

These standards have been developed with the cost of implementation in mind, and it is believed that these standards will have a minimal cost impact to the Department when implemented. There is no risk to the department in employing these suggested standards. The standards have been designed to ensure maximum future flexibility, greatest growth potential and lowest cost of maintenance. A greater risk to the department's operations exists if developers do not follow or correctly employ these minimum standards as more applications are developed.

The complexity and critical nature of the department's, automated systems in relation to the operations and function of the department necessitate that these standards be implemented and followed. The department's overall IT plan for a completely integrated system is currently in progress. The plan for an integrated system extends the already completed integrated systems of Company Licensing, Financial Solvency, Statutory Deposits, Agenda, all of the Internet access systems and soon to be completed Taxes system. The plan depends on the standards being implemented, followed, and adherence to the standards monitored.

LDI Software Development Standards Goal

The goal of this document is to establish common standards including system integration for which all present and future automated systems will obey.

These standards will provide the department maximum flexibility, increase the flow of information between different systems within the department and create a foundation for all systems to start from.

These standards cannot be circumvented in any state of an applications or systems lifecycle. Only by all systems embracing these standards will the overall goals of the department be achieved.

Exceptions, Changes and Amendments to Software Development Standards

All exceptions, changes and amendments to the Software Development Standards must be formally approved. There will be no deviations from the published software standards without approval. All subsequent publications or addendums to this document adhere to the same policy of no changes without approval. Any questions concerning what issues need approval should be directed to the IT Director for clarification.

Below is an overview of the approval process:

1. Identify and document all desired changes or deviations from the published Software Development Standard.
2. Document the basis and specific issues requiring the change or deviation from the published standard. Give an explanation in support of the deviation from the published standards.
3. Provide IT Director with all documentation for revising the standards
4. Based on provided documentation, the current overall IT plan and the current and future needs of the department, the IT Director will make a determination on validity of request.
5. If the request is valid, and is of such nature that it does not require a committee recommendation, the IT Director will issue an exception to the published software development standard. If the issue requires a modification to the document, the IT Director will modify the document, and forward the revised document with a recommendation to the Assistant Commissioner of Management and Finance and the Deputy Commissioner of Management and Finance for review and approval.
6. If the IT Director determines that a more through review is warranted, the IT Director will convene an IT standards committee.
7. The IT committee will also make a determination on the viability of any proposed modifications to the published standard based on provided documentation, the current overall department IT plan and the current and future needs of the department.
8. The IT Committee will disregard the request, create an exception to the standard, change or amend the software standards document based the decision of the committee.
9. The IT committee will then pass a decision on the requested

exception, change or amendment to the document, and if required, the revised document to IT Director for review.

10. The IT Director will then review the decision, and if necessary the revised document. If the IT Director approves of the decision and the actions of the committee, the document and a recommendation will be forwarded to the Assistant Commissioner of Management and Finance and Deputy Commissioner of Management and Finance for review.
11. Upon review of the revised document and recommendation, the Assistant Commissioner of Management and Finance and Deputy Commissioner of Management and Finance will approve or disapprove changes.
12. If the revised document is approved, the final revised document is published and becomes the new standard for the department.

New standards will only take effect when an exception to policy is issued by the IT Director, or the final approved version of the modified Software Development Standards document is published.

Implementation Objectives

The overall objective during implementation of these standards is to ensure and verify proper integration and consistency across the automated system or systems being developed or maintained. Correct integration within the department databases and current automated systems is crucial for the operation of the department. The process and scheme of implementation must be consistent with other databases and systems as to minimize the future development and maintenance costs to the department. Finally, only by consistent implementation can the department be secure in relying on the systems for dependable operation, and be secure in the accuracy of the information being stored and processed.

LDI Systems Integration

A primary goal of the departmental software standards is the creation of a set of common interfaces within the department's databases which will allow the flow of information between databases, systems, and applications without error, maximize speed and decrease the need for special interfaces.

Currently, there are several different interfaces under development. At this time, only the LDI ID interface is in operation. When new interfaces are deployed, the interfaces will be documented within this document.

The introduction of all new systems **should** integrate into the existing Regulated Entity Database (RED).

Integration of new systems into the RED system permits real time or near real time data access, data updates and data exchange between the diverse systems in the department. The RED system choreographs and streamlines the flow of information between all of the department's integrated systems. New systems working in concert with the RED system also ensure that special data transformation programs and routines do not have to be developed, deployed and relied upon for daily department operations.

LDI ID Integration

In order to integrate systems and databases with one another the department has developed a method of tracking entities. This method involves an entity identification number. This entity id is crucial and absolutely required by all systems which process company or producer information.

The LDI entity ids **must** be unique across entities. For example, a producer cannot have the same LDI entity id as a company, an examiner or any other LDI entity.

The method for assigning these unique ids will be as follows:

The following SQL Server table will be created:

```
create table ldi_entity
(
    ldi_entity_id          integer,          --  Unique LDI ID
    ldi_entity_type_id     varchar (30)      --  Entity Table Name
) ;

create unique index ldi_entity1 on ldi_entity (ldi_entity_id) ;
```

When adding a new record to any entity table, a SQL Server user defined function (GetNextLDIId) will assign the next available LDI Id to the new entity.

LDI Acceptable Tools and Technologies by Category

The following tools and technologies are acceptable for the development of new LDI Software Systems:

Operating Systems

- Microsoft Windows Server 2003
- Microsoft Windows XP (Desktop)

Database Engines

- SQL Server 2005

Programming Languages, Tools and Technologies

- .NET Framework 1.1
- Visual Studio.NET 2005
- Microsoft Web Matrix
- C#.NET
- VB.NET
- ASP.NET
- XML
- Active Reports
- Crystal Reports 10
- Robo Help

Database Design Tools

- AllFusion Erwin Data Modeler
- AllFusion Component Modeler (UML)
- AllFusion Data Model Validator
- Microsoft Visio

Administrative Tools and Technologies

- Microsoft Source Safe 2005
- Microsoft Project
- Red Gate SQL Data Compare
- XML Spy

Documentation Technologies

- Adobe Photoshop
- Adobe Acrobat Pro
- Microsoft Word
- Robo Help

❖ *For all maintenance performed, the original development environment and/or application initially used can be utilized.*

LDI Project Management

The department has chosen Microsoft Project as its primary automation tool to assist in managing all IT projects. In addition to the reports which can be generated by Microsoft Project, the department has mandated that the following additional documents be produced.

- Requirements Document
- Design / Definition / Specifications Document
- Project Management Plan (PMP)
- Project Plan and Work Breakdown Structure
- Weekly Status Reports
- Issue Descriptions
- Change Requests
- Acceptance Certificates
- Test Plan
- Test Plan Results

Requirements document, Design / Definition documents, overall project management plan, work breakdown and initial test plan are all due before actual work on a project begins. These documents should at a minimum determine the functionality, operational capability, and features of the system, define the whole organizational structure of the system, explain any critical dates in the timeline of the project, illustrate any possible problems, and define the critical path for project completion.

A Gantt chart is appropriate method for displaying timelines and the critical path for a project.

Completed weekly status reports, issue description sheets, change requests, acceptance certificates, and test plan results are to be given to both IT and the respective division's IT coordinator for project tracking.

LDI Project Deliverables

All software projects at the department, either development projects or maintenance projects have a 1) software and 2) documentation component. These two components should be delivered in a form consistent with department standards.

The following tools can be used to produce all deliverables:

- C#.NET
- VB.NET
- ASP.NET
- Active Reports
- Crystal Reports
- AllFusion Erwin Data Modeler
- AllFusion Component Modeler
- AllFusion Data Model Validator
- Microsoft Visio
- Adobe Photoshop
- Adobe Acrobat Pro
- Microsoft Web Matrix
- Microsoft Word
- Robo Help

Software Deliverables

Application software should be developed using the following recommended applications:

- Visual Studio.NET 2005
- C#.NET
- VB.NET
- ASP.NET
- Active Reports for .NET
- Crystal Reports 10
- SQL 2005

All objects written on the SQL server should be written in Transact SQL only.

Documentation Deliverables

LDI requires that all documentation be a consistent organized collection of documents that describe the global structure, purpose, operation, maintenance and data requirements for a program. All documentation for LDI systems will include:

- User Documentation / User Manual
- Program Source Code and Technical Documentation

Program and Technical documentation should have at least these sections:

- **System Design Overview**
- **Operational Environment**
- **Object Reference**
- **Database Models**
- **Entity Relationship Diagrams**
- **Database Normalization**
- **Stored Procedure Reference**
- **Table Reference / Data Dictionary**
- **Integration with LDI's Integrated Database**
- **Security Reference**
- **VB / C# Source Code**
- **Stored Procedure Source Code**
- **SQL Script Printout**
- **Report Descriptions**
- **Deployment Instructions**

All documentation should be submitted in electronic format, Adobe pdf format preferred, in addition to paper.

Documentation deliverables are due when the software deliverable is completed or according to predetermined and prescribed project plan.

User Documentation/ User Manual

User Documentation – User manual is to be written from a client perspective. The purpose of the document is to empower the client to be self-sufficient.

Application

- How To – Includes any of the following that apply to the project. All documentation is to be written in "User Manual" format. Include screen capture images for easy understanding.

  - Security Maintenance
  - Application Maintenance
  - Application Usage
  - Expirations – Any expirations which will affect the system (i.e. rollover of data, temporary permissions, and site and/or application certificates)

Technical Documentation

All technical documentation should to be written from a design and support perspective. The reader of the documents should be assumed to fully understand the technology and grasp the problem for which the system provides a solution to. The only instance when technology should be explained is when the technology is being utilized in a non-standard method, or in a technique that has not been exploited previously by the department.

Standard technical documentation to be produced for all projects:

- **System Design Overview**
- **Operational Environment**
- **Object Reference**
- **Database Models**
- **Entity Relationship Diagrams**
- **Database Normalization**
- **Stored Procedure Reference**
- **Table Reference / Data Dictionary**
- **Integration with LDI's Integrated Database**
- **Security Reference**
- **VB / C# Source Code**
- **Stored Procedure Source Code**
- **SQL Script Printout**
- **Report Descriptions**
- **Deployment Instructions**

Below is a synopsis for each document:

- **System Design Overview**
  - Overview: Provide an overview of the system developed.
  - Program Specifications: Specifications developed in the planning phase of the project.
  - Functions: Specify the system/subsystem functions.
  - System/Subsystem Logic: Describe the logic flow of the entire system/subsystem in the form of a flowchart/diagram.
- **Operational Environment**

- Operations: Describe the operating characteristics of the user and computer centers or sites where the software will be operational.
- Equipment: Identify the equipment and software required for the operation of the software to be developed.
- Support Software: Describes any if needed.
- Interfaces: Describe and define all interfaces to the system. These include interfaces with other department databases and application systems, external databases and systems to the department and specific user interface requirements.

❖ **Object Reference**
- Overview: Indentifies and describes all program and data objects developed.
- Sub Programs: Any separate subprograms required for system functionality are described.

❖ **Database Models**
- Overview: High level description of database design and goals and database models developed for system.

❖ **Entity Relationship Diagrams**
- Overview: All relationship diagrams for system.

❖ **Database Normalization**
- Overview: Description of 3rd normalization implementation.

❖ **Stored Procedure Reference**
- Stored Procedures: All stored procedures developed for system which are located on the departmental database are defined and described.
- Special Dependencies: Any special or extraordinary stored procedure dependencies are defined and described.
- Views: All database views are described and defined

❖ **Table Reference / Data Dictionary**
- Table Schemas
- Schemas and Table Definitions: All table layouts are defined with types, length and size where appropriate.
- Database Diagrams: Diagrams with identifying primary and foreign keys with all indexes.
- Data Dictionary: Document describing all fields by field name with description of information to be stored in data field.

❖ **Integration with LDI's Integrated Database**

- Integration Description: Describes the implementation of the system with the departmental integrated database. This includes logical descriptions of program functionality.

❖ **Security Reference**

- Model: Define the security model utilized for the system. All algorithms for security verification and encryption are described.
- Database: All table, stored procedure, and view permissions by active directory users and groups.
- User: All specific update, view, and create permissions by active directory users and groups.

❖ **VB / C# Source Code**

- Source Code: All source code of the system divided by module.

❖ **Stored Procedure Source Code**

- Stored Procedure Source: All transact SQL source code for all procedures, divided by procedure.

❖ **SQL Script Printout**

- Scripts: All transact SQL source code for all scripts.

❖ **Report Descriptions**

- Overview: Description of each report. Included are reporting requirements, all input parameters and sample output.

❖ **Deployment Instructions**

- Overview: Detailed technician level instructions for installing the developed system.
- Dependencies: Description of all required support software by operating system, operating system version, support software, support software version, and software location on server and client computers.

LDI Application Look and Feel Guidelines

All applications and systems developed for the department should conform as closely as possible to the Windows design metaphor. The department has chosen Microsoft products as the department's standard for base installations on all department workstations. Designing programs and systems to closely conform to the Microsoft standard will minimize the training costs and reduce the time required for users to become familiar with a new application or system.

The Microsoft guidelines can be found in the Microsoft publication, *Official Guidelines for User Interface Developers and Designers*. This manual can be found on the Microsoft website at the following address:

http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnwue/html/ch00b.asp

All deviations or extensions from this standard must be approved by the IT division. Additional approval may be required from the IT coordinator for the division or divisions for whom the application or system is being developed.

LDI Database Normalization

Correct data expression is of utmost importance to the department. A minimum of ***third normal form*** must be applied to the relational database developed for the LDI. A relational database that satisfies the 1NF, 2NF, and 3NF is sufficiently well designed to support all mission critical-business applications.

Strict definitions of the fourth and fifth normal forms should be used sparingly since the cost/benefit relationship typically does not warrant their utilization and can actually result in performance degradation.

LDI Development, Test and Production Environments

In order to create the most robust environment for systems development and production, the areas of development and production have been logically and physically separated into the following regions:

- Development
- Testing
- Production

Only in the **system development environment** are databases and program code objects created, and modified and actual system or program coding occurs. The development environment is characterized by the unique ability of the developer to make dynamic changes to their system development area without prior authorization or coordination.

During and after development, all system code developed or updated is controlled and cataloged through the Microsoft Visual Source Safe. The location and management of the source safe server will be controlled by the LDI IT department.

The **application testing environment** is an exact replica of the production system which the system is designed to function. This environment allows the developed code to be tested against final production schemas before being moved into production. The primary difference between the development environment and the testing environment is the ability for the developer to make on the fly changes to the underlying database. The testing databases are not to be changed without prior coordination. The testing environment is to be used for all system and program testing by the developers, LDI IT staff and LDI users.

A SQL job is scheduled and routinely executed to keep the data in the test environment consistent with the production environment.

The **production environment** is logically and physically separated on different servers. LDI internal application databases are also physically separated from external and Internet and WEB application databases. This allows for maximum flexibility and security with departmental data. The production environment is designed for maximum uptime and the fastest possible response time. As a result, no on the fly changes are allowed within the production environment. All changes to either the databases or system programs have to scheduled with LDI IT staff, support personnel, and the LDI division responsible for the automated system.

Methods and Procedures to Move New Systems and Updates into the Production Environment

Once a newly developed system or existing system update has been thoroughly tested by the developer, and department staff, and the department staff has approved the system update; then the system can the moved to the production environment for operations.

Due to the complex nature of the department's automated systems, exact methods and procedures for shifting systems or programs into production cannot be standardized.

LDI staff, working in conjunction with the entity responsible for completing the project, will determine the best method for transitioning a new system or updated system into the LDI production environment.

System and Application Launching Point

All developed systems and applications are launched from the department's Intranet site. The Intranet is the only departmentally approved location for a system to be launched. Within the Intranet, shortcuts and aliases to the actual program or initiation program are allowed. The program or application itself is not to be stored on the Intranet server. All links from the Intranet are to be relative in nature, and absolute locations are never to be used.

Program and system dependencies for the client workstations, which are dynamic in nature, and can be updated on the fly, are to be stored within the program or system directories. The dependencies are then updated upon launching the program or system by the user when the user initiates the program.

Permissions Structure

All system, application and database permissions are handled by the Windows Server active directory, and roles defined within the database server.

All users within the department are divided into functional areas or groups. Windows Server has the groups defined within its active directory. Users are defined by which group they belong to. The group itself determines which permissions or abilities the group has. All database roles are a subset of the group as defined within the active directory. Together the group's permissions and database roles describe all actions a user can perform on the departmental network.

No other method or technique of managing users or user's permissions is allowed.

Naming Conventions

All tables, stored procedures, database views, code modules, programs, and reports should comply with the department's naming conventions.

The department's current naming convention for tables, stored procedures, database views, and reports has the application name followed by an underscore preceding the name of the object. This standard is consistent across all systems.

All code or reference tables have an underscore and the characters cde following the table name.

Currently, the department is developing and extending the departmental name convention guide lines.

Appendices

Coding (Language) Recommendations

Overview

A comprehensive coding standard encompasses all aspects of code construction and not just the language used. While developers should prudently implement a standard, it should be adhered to whenever practical. Completed source code should reflect a harmonized style, as if a single developer wrote the code in one session. At the inception of a software project, establish a coding standard to ensure that all developers on the project are working in concert. When the software project incorporates existing source code, or when performing maintenance on an existing software system, the coding standard should state how to deal with the existing code base.

The readability of source code has a direct impact on how well a developer comprehends a software system. Code maintainability refers to how easily that software system can be changed to add new features, modify existing features, fix bugs, or improve performance. Although readability and maintainability are the result of many factors, one particular facet of software development upon which all developers have an influence is coding technique. The easiest method to ensure a team of developers will yield quality code is to establish a coding standard, which is then enforced at routine code reviews.

Using solid coding techniques and good programming practices to create high-quality code plays an important role in software quality and performance. In addition, if you consistently apply a well-defined coding standard, apply proper coding techniques, and subsequently hold routine code reviews, a software project is more likely to yield a software system that is easy to comprehend and maintain.

Although the primary purpose for conducting code reviews throughout the development life cycle is to identify defects in the code, the reviews can also enforce coding standards in a uniform manner. Adherence to a coding standard is only feasible when followed throughout the software project from inception to completion. It is not practical, nor is it prudent, to impose a coding standard after the fact.

Language

Choosing a programming language depends on your language experience and the scope of the application you are building. While small applications are often created using only one language, it is not uncommon to develop large applications using multiple languages. For example, if you are extending an application with existing XML Web services, you might use a scripting language with little or no programming effort. For client-server applications, you would probably choose the single language you are most comfortable with for the entire application. For new enterprise applications, where a large team of developers create components and services for deployment across multiple remote sites, the best choice might be to use several languages depending on developer skills and long-term maintenance expectations.

Because of the wide range of choices for developing a new system under, it is recommended that the project leader in conjunction with the Development Oversight Committee (DOC) be responsible for the ultimate platform decisions of a project.

The .NET Platform programming languages — including Visual Basic .NET, Visual C#, Managed Extensions for C++, and many other programming languages from various vendors — use .NET Framework services and features through a common set of unified classes. The .NET unified classes provide a consistent method of accessing the platform's functionality (Microsoft Windows).

The following sections identify the two current standard languages of the LDI and will help the DOC and project leader choose the right programming language for the project.

Visual Basic.NET

Visual Basic .NET is the next generation of the Visual Basic language from Microsoft. With Visual Basic you can build .NET applications, including Web services and ASP.NET Web applications, quickly and easily. Applications made with Visual Basic are built on the services of the common language runtime and take advantage of the .NET Framework.

Visual Basic has many new and improved features such as inheritance, interfaces, and overloading that make it a powerful object-oriented programming language. Other new language features include free threading and structured exception handling. Visual Basic fully integrates the .NET Framework and the common language runtime, which together provide language interoperability, garbage collection, enhanced security, and improved versioning support. Visual Basic supports single inheritance and creates Microsoft intermediate language (MSIL) as input to native code compilers.

Visual Basic is comparatively easy to learn and use, and Visual Basic has become the programming language of choice for many developers over the past decade. An understanding of Visual Basic can be leveraged in a variety of ways, such as writing macros in Visual Studio and providing programmability in applications such as Microsoft Excel, Access, and Word.

Visual Basic provides solutions for the following:

- Windows Application.
- Class Library.
- Windows Control Library.
- ASP.NET Web Application.
- ASP.NET Web Service.
- Web Control Library.
- Console Application.
- Windows Service.

Visual C#.NET

Visual C# (pronounced C sharp) is designed to be a fast and easy way to create .NET applications, including Web services and ASP.NET Web applications. Applications written in Visual C# are built on the services of the common language runtime and take full advantage of the .NET Framework.

C# is a simple, elegant, type-safe, object-oriented language recently developed by Microsoft for building a wide range of applications. Anyone familiar with C and similar languages will find few problems in adapting to C#. C# is designed to bring rapid development to the C++ programmer without sacrificing the power and control that are a hallmark of C and C++. Because of this heritage, C# has a high degree of fidelity with C and C++, and developers familiar with these languages can quickly become productive in C#. C# provides intrinsic code trust mechanisms for a high level of security, garbage collection, and type safety. C# supports single inheritance and creates Microsoft intermediate language (MSIL) as input to native code compilers.

C# is fully integrated with the .NET Framework and the common language runtime, which together provide language interoperability, garbage collection, enhanced security, and improved versioning support. C# simplifies and modernizes some of the more complex aspects of C and C++, notably namespaces, classes, enumerations, overloading, and structured exception handling. C# also eliminates C and C++ features such as macros, multiple inheritance, and virtual base classes. For current C++ developers, C# provides a powerful, high-productivity language alternative.

Visual C# provides solutions for the following:

- Windows Application.
- Class Library.
- Windows Control Library.
- ASP.NET Web Application.
- ASP.NET Web Service.
- Web Control Library.
- Console Application.
- Windows Service.

Naming Guidelines

It is recommended that the department adopt a unified naming guideline for all development. Microsoft has a fairly complete document which should serve as a start. It can be viewed at the following location:

http://msdn.microsoft.com/library/default.asp?url=/library/enus/cpgenref/html/cpconnamingguidelines.asp

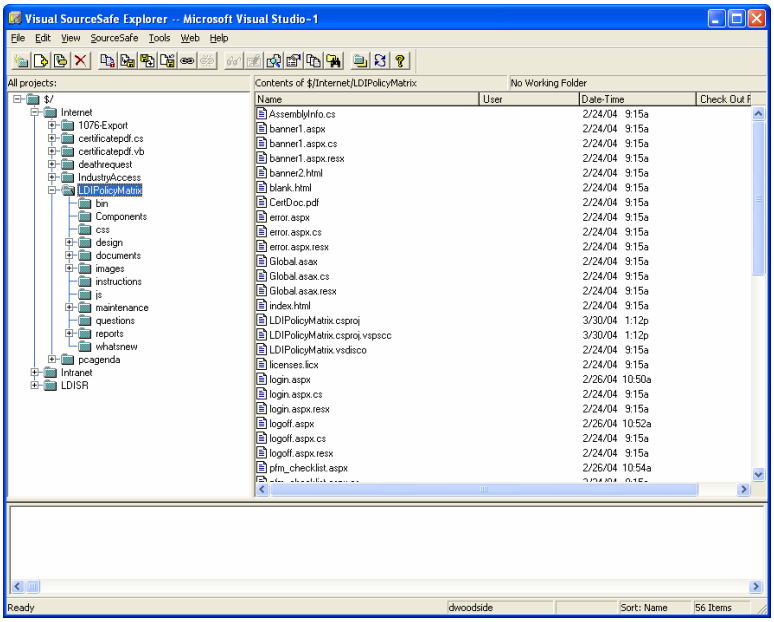
Source Safe Recommendations (Source Control)

From a simplistic perspective, a Software Configuration Management (SCM) product, like Visual SourceSafe (VSS), is a central library, or database, of documents that make up a project. Visual SourceSafe can store any stream of bits, such as project plans, specification documents, database objects, source code, and any other artifacts of your project. As a best practice, all project artifacts, not just source code, should be contained in a Visual SourceSafe database for easy access, sharing among team members, and most importantly, for version control. This database should be centrally located and administered by an assigned LDI staff member.

It is recommended to use Visual SourceSafe since it keeps with the department standard of utilizing a Microsoft platform.

The SourceSafe repository is currently stored at:

\\ldiwebdevel\d\Program Files\Microsoft Visual Studio\VSS\srcsafe.ini



Integration Guidelines

Overview

The Louisiana Department of Insurance is presently going through a major rewrite of its systems. Most of the new systems being developed are being custom developed onsite. Each of these project groups is assigned a business unit to work within but little communication about system design and business logic crosses from group to group. To facilitate this communication an internal process needs to be put in place to assist in bringing these groups together. It is recommended that a Development Oversight Committee (DOC) be created to perform the following task:

- Set IT strategic direction for the department (with approval from the IT director and selected department leaders)
- Identify department leaders
- Review ongoing status of projects (Measuring a Project's Success)
- Set development guidelines
- Resolve issues which affect multiple projects

The DOC should consist of the following:

- Strategic Planner – team lead; should be an LDI IT employee
- One representative from each project group
- Key business unit leaders depending on current projects

What Does the Development Oversight Committee Do?

As the name implies, this committee is ultimately responsible for the development efforts of the department. The first goal of the strategic planner and the committee is to define the overall IT strategic plan for the LDI. With this in hand the master project plan can be produced and the projects started.

IT Strategic Plan

Simply put, strategic planning determines where an organization is going over the next year or more, how it's going to get there and how it'll know if it got there or not. *The focus of a strategic plan is usually on the entire organization.*

Quite often, an organization's strategic planners already know much of what will go into a strategic plan. However, development of the strategic plan greatly helps to clarify the organization's plans and ensure that key leaders are all "on the same script". Far more important than the strategic plan document, is the strategic planning process itself.

The vision put forth in the plan should project into the future an IT environment that will deliver needed services to LDI staff and outside parties. The vision for IT is to support and align projects with the Business Plan and the needs of the industry. The specifics of LDI's future IT environment are directly linked to the agency's strategic business plan that provides the programmatic framework for all LDI work. By practicing strict strategic alignment of IT resources with programmatic priorities, LDI can achieve a match between industry and internal needs and technical sophistication.

Identifying Department Leaders

To provide needed support for IT initiatives, key leaders in the LDI need to be sought out and a working relationship built. The first step should be in identifying all key system at the department and creating owners of these systems in the client community. This ownership inherently builds a relationship between IT and the clients using the systems. These key department leaders know first hand the business and the issues the systems need to resolve.

Review Ongoing Status of Projects

To accurately measure the success of a project, there must be a set of standards to measure against. While all projects undertaken are unique and have varying measurements, there are some which are common to all projects.

Common measurements:

- Adherence to timeline
- Adherence to budget
- Percent project complete (based on task from the function specification but not budget or timeline)
- Level of client satisfaction
    - Client response to demonstrations of product during each iteration
- Other measurements defined by the project leader and the primary client
    - Adherence to statement of work
    - Report from test results

A standard report should be developed which takes these measurements into account and reported to the DOC on a regular interval. Based on the report, the DOC will determine the involvement needed in each project. Often the DOC's involvement on any project will change throughout the project lifecycle.

Setting Development Guidelines

The DOC should set guidelines for not only defining the platforms the applications either execute on or the technology within which they are developed but should also set the standards by which the applications are developed. This includes but is not necessarily limited to programming frameworks, languages, naming conventions and documentation.

Resolve Issues which Affect Multiple Projects

By being involved with all the projects at the LDI, the DOC will from time to time come upon issues which affect multiple projects or the entire organization. These issues should be resolved by a sub-committee in the DOC so that the organization receives a unified result. As an example, over time there have been issues which have come up at the department (i.e. a consistent numbering schema for entities) where multiple solutions have been implemented by various projects. In the end, a unified solution will need to be implemented and the existing systems converted. If an oversight committee were in place, a unified solution would have been created originally.

By the DOC being involved in the ongoing projects of the department, and the relationship built between the individual project leaders and the DOC, these issues can be identified and brought before the DOC for a unified solution. Once a resolution is determined, it can be documented and made available to all projects for consumption.

Defining the Development Oversight Committee

The goal of the DOC is to ensure the department receives the maximum value for the resources it expends on developing new systems. These systems developed should be highly integrated, easy to use and maintain and reliable.

The strategic planner sits as the chairperson of the committee. This implies this role takes leadership of the group and helps set the vision but is not the sole person responsible for all decisions.

Strategic Planner

The strategic planner is the person responsible for helping set the overall IT goals for the department. This person works in conjunction with the IT director at the LDI and key department leaders to set the goals for the department. Ideally the goals would be set for the next five years with a major revision occurring every three.

The key responsibilities of this role would be to stay in touch with the various project leaders and the department leaders. Working with this team in part or whole this person will help direct the development of new systems at the LDI.

Project Groups Representative

Each project group's (both internal and external) project leader will report to the strategic planner. This reporting will take the form of both status reports, metric reports but also include business design issues (and any other method or reporting deemed necessary by the strategic planner). The goal is for the strategic planner to bring together all development efforts at the department into one consistent plan. As an example, it was

brought to the group that an overall consistent method for numbering entities was needed across all platforms. The strategic planner is the individual responsible for facilitating the overall solution and disseminating it to all other project groups.

Key Business Unit Leaders

It is important for the strategic planner to stay in touch with all key business unit leaders but having all serve all the time on the DOC would create a group too large to effectively move forward. Thus it is recommended the business unit leaders serve on a rotating basis with the rotation determined by the projects currently in process. For example, while the tax department is having the main tax system developed, a key individual from that department should serve on the DOC.

Contributors

LDI department personnel and the following contributing companies worked together to update this document.

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